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**Preparations for the ninth session of the Commission on
Sustainable Development, on energy issues**

National submissions

Report of the Secretary General

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I. Introduction

1. The Economic and Social Council, in its decision 1999/60, invited the Secretary-General, on the basis of submissions and information provided by Governments and in close collaboration with entities within the United Nations system as well as other relevant organizations, to prepare analytical reports and other documentation, as appropriate, for consideration at the first session of the Ad Hoc Open-ended Intergovernmental Group of Experts on Energy and Sustainable Development. The present report summarizes the submissions received from respective Governments in response to a request by the Secretariat.¹

II. Government submissions

2. The following have been identified as issues of importance by many of the respondent countries as issues requiring attention during the preparatory process leading to the ninth session of the Commission: access to energy services, accelerated development and use of renewable sources of energy, improved energy efficiency, cleaner fuel technologies, liberalization and privatization, finance and investment, economic instruments and international cooperation. Many of the countries also made submissions on energy and transportation and energy and atmosphere. These issues are highlighted in detail below.

3. Implicit in the submissions is the acknowledgement of the special role that energy plays in advancing economic, social and environmental objectives of sustainable development, and the need to formulate and implement sustainable energy policies. Many countries have attempted to identify what such a policy should include, suggesting, for example, that it should ensure security of supply in order to support economic and social development while protecting the environment; improve efficiency of production, conversion and use; emphasize the development and more widespread use of renewable sources of energy; or protect the environment through, among other things, reduced emissions of greenhouse gases and other pollutants and maintenance of local air quality.

4. A number of countries highlighted the challenges faced in developing and implementing national energy policies, chief among which is the difficulty in

harmonizing various often conflicting goals. Meanwhile, some countries stressed the importance of an integrated approach in the planning for and implementation of national energy programmes and of extending such approaches to rural areas.

5. The number of responses, most of which were from developed countries, is quite small. Thus, most of the issues highlighted tend to reflect the perspective from these countries rather than being representative of the world as a whole. The main points made in the submissions have been summarized under the separate headings set out below.

A. Access to energy services

6. Respondents affirmed that an adequate supply of energy at affordable prices is an issue of great importance. According to many of the respondents: (a) the supply of all forms of energy should be based on reliable diversified sources, preferably indigenous, and on a culture of energy conservation and efficiency of use; (b) overdependence on imported oil should be avoided; and (c) energy pricing structures should reflect economic, social and environmental cost associated with the production, conversion and use of energy.

7. Different countries have developed the necessary infrastructure and have put in place measures and procedures to ensure efficient, effective and equitable distribution of energy services to consumers, with minimum interruption. A number have stated that security can be further increased through regional cooperation, the interconnection of energy networks and agreements that facilitate international trade in energy and energy products.

8. Respondent developing countries have identified high levels of dependency on imported fossil fuels and electricity as well as large disparities in access to energy supply between urban and rural populations, where the bulk of the population live, as among the major problems facing most developing countries, especially those in Africa.

B. Accelerated development and use of renewable sources of energy and technologies

9. All respondents underscored the need to promote further development of renewable sources of energy and the more widespread application of new and improved technologies for both small- and large-scale applications as part of progress towards achieving a sustainable energy future.

10. A wide variety of measures and approaches have been used to achieve this goal, some of which may be of interest to other countries. Examples of the measures taken include (a) undertaking studies to identify barriers to the development and use of renewable sources of energy, and the development of policies to ensure that such barriers are not created and that these sources are not discriminated against; (b) establishing adequate institutional and planning frameworks for promoting the development of renewable sources of energy and technologies; (c) developing human resources in the field of renewable sources of energy; (d) deepening public awareness regarding the potential of these resources; (e) promoting the development and implementation of appropriate standards and guidelines (including manuals) and codes for the use of renewable energy technologies; (f) establishing and disseminating suitable information systems on renewable sources of energy and of energy technologies; (g) fully integrating available renewable energy technologies into the mainstream of energy economy; (h) allocating more resources to research, development and demonstration aimed at developing new technologies and improving existing ones; (i) simplifying administrative procedures for setting up small-scale installations; (j) providing incentives (including subsidies) and financial credits for the development of renewable sources of energy and technologies; (k) encouraging community-based renewable energy development; (l) guaranteeing access to the electricity grid; and (m) strengthening cooperation among national, industrial, academic, governmental and other organizations in long-term research and renewable sources of energy.

11. One developing country submission stated that renewable energy technologies are relatively expensive and that the higher cost of investment has in part resulted from the high tariffs on renewable technology components and the high cost of imports and taxes. It added that a development strategy for renewable

sources of energy should therefore be meticulously planned, encompassing technology, the functioning of markets, sources of finance, including the private sector, and environmental issues.

C. Improved energy efficiency

12. A number of Governments have launched a variety of measures to improve energy efficiency thought to be of interest to other States. These include developing and applying efficient energy technologies, applying combined heat and power generation, energy conservation programme in the industrial and tertiary sectors, and improving energy efficiency in the building sector. For some countries, energy conservation programmes have been promoted, as has legislation (as specified by law or regulation), voluntary programmes (which have been facilitated by the provision of financial assistance) and a combination of the two (complementary programmes) which has involved training and promoting public awareness.

13. In some countries, efforts directed at improved efficiency in the generation, transformation and distribution have taken such forms as improved information, financial incentives and direct investment. In the developed countries, improving energy efficiency is viewed as playing a key role in reducing greenhouse gas and other emissions. The electricity sector in many countries, developed and developing, has been at the forefront in formulating and implementing energy efficiency measures, for example those involving demand-side management integrated resource management planning, and reduction of power losses.

14. The approaches taken to achieve the goals vary widely. The ones that are referred to repeatedly by respondents are: (a) identifying and overcoming barriers which prevent widespread use of energy efficiency, (b) energy auditing and training of professionals, (c) introducing energy efficiency labels, (d) levying high taxes, (e) adopting appropriate legislation, (f) introducing voluntary agreements, (g) developing standardization procedures, and (h) putting in place institutional frameworks which promote energy efficiency.

D. Cleaner fuel technologies

15. Given the prominent role played by fossil fuels in meeting the energy requirements of many countries, the development and application of clean fuel technologies occupies a central place in the policy of many countries, as part of the effort to protect the atmosphere and move towards a sustainable energy future. Such activities are aimed at improving efficiency and reducing greenhouse gas emissions (mainly carbon dioxide) and other pollutants, such as sulphur dioxide, oxides of nitrogen and particulate matter.

16. With regard to coal, emphasis has been placed on the development of cleaner technologies, improvement in electricity generation efficiency, desulfurization and denitrofication, underground gasification and vaporization by combustion. Many countries continue to provide sustained research and development support to the development of new technologies. For oil, emphasis has been placed on the development of technology for improving the desulfurization rate and producing low sulphur.

17. Fuel substitution — low carbon for high carbon — has received particular attention, witness the increasing use of natural gas to replace coal and oil or of oil to replace coal, for electricity generation. A number of programmes have been initiated in order to use renewable sources of energy, in the long term, to partly replace fossil fuels for electricity generation and other applications.

E. Liberalization and privatization in the energy sector

18. Many countries have undergone, embarked on or are in the process of implementing reforms and the restructuring of their energy markets. The main objectives of such efforts are to increase competition in the energy sector and bring about more efficiency in the sector; provide adequate energy at reasonable prices to consumers; reduce the investment burden of the public sector; ensure that consumers are provided with the best possible safe services; encourage private-sector participation in the investment in the energy sector; and provide consumers with more options on energy suppliers and quality of supply.

19. While for some of the respondents the privatization process is not complete, the verdict so far

is positive: the private sector is increasingly participating in the generation and distribution of energy services, with better availability and reliability. Competition is the order of the day. This in turn leads to minimization of losses and more efficient use of fuels and hence reduced adverse environmental impact.

20. For a number of developing countries, inadequate human resources, lack of standards and other problems are likely to slow the speed of liberalization.

F. Financing and investment

21. Energy-producing and energy-consuming infrastructure is capital intensive. Much of the financing for investment will be borrowed through international capital markets. While it is anticipated that in the current situation characterized by market liberalization, the private sector will contribute an increasing share of the finances required for investment in the energy sector, the public sector has a vital role to play.

22. A number of respondents described financing and investment activities which they have undertaken as part of measures to implement national policies. In addition, some have highlighted difficulties experienced in obtaining adequate financing for energy efficiency, and renewable energy programmes and for research and development, while others have indicated the kind of actions being undertaken or contemplated in financing and investment as part of international cooperation efforts. Most of the respondents which address these two issues emphasize the need for financing and investment in these areas — energy, efficiency, renewable sources of energy, cleaner fuel technologies — as part of an effort towards achieving sustainable energy development.

G. Economic instruments

23. Economic instruments, such as taxation, pricing and subsidies — for incentives and disincentives — have been successful over the years in the energy sector. Systematic use of existing and new forms of economic instruments aimed at promoting the use of energy services that lead to a more sustainable energy future, while discouraging the use of the ones with negative environment and health impacts, is called for.

24. For some, taxation is one of the main policy instruments in relation to climate change and environmental policies. The types of taxes have varied reflecting the particular policy perspectives of each country. Most have been in the form of taxes for energy use. Others have also included carbon taxes, sulphur taxes etc. It has been stressed that economic instruments must be seen in the context of other policy measures, namely, motivation and regulatory measures.

H. International cooperation

25. Many respondents embraced the significance of international cooperation, especially with developing countries and countries in transition, as a means to improve the pursuit of a sustainable energy future. They see this also as a means to enhance their economic performance and improve their social conditions, while protecting the environment or reducing adverse environment impacts. Other areas of interest to countries are equitable development, multipartnership and dissemination of information, including sharing experiences at the field level. International cooperation encompasses cooperation within multinational organizations, bilateral cooperation or regional cooperation.

26. A number of respondents highlight cooperation with multilateral organizations, such as the World Bank (energy management assistance programme), the Global Environment Facility (projects for increased use of new and renewable sources of energy), the United Nations Secretariat and other bodies of the United Nations system (capacity-building preparation of analytical studies). They participate in the activities of these and other intergovernmental bodies, such as the International Atomic Energy Agency and the European Union.

27. Bilateral cooperation with developing countries has been widespread and varied, and has included institution- and capacity-building, funding projects and programmes in new and renewable sources of energy, contributing to fossil fuel development and transfer of technology.

I. Sustainable transportation

28. The transport sector is among the fastest growing, with associated sharp increases in energy consumption.

Transport energy use has an impact on the country's economy, as well as its social and environment well-being (local air pollution and greenhouse gas emissions).

29. Most respondents call for transport policies that contribute to the economic, social and environmental objectives of sustainable development. To that end, they stress the need to develop efficient transport systems with reliable services; promote transportation efficiency through pricing and other mechanisms; increase the use of cleaner alternative fuels and support human resource development; transfer demand from road to rail and water in order to reduce energy consumption and environmental consequences; encourage the use of mass transit over private vehicles; and phase out leaded gasoline.

J. Other issues

1. Energy and atmosphere

30. Respondents from developed countries made a number of submissions under this topic. The energy sector is the main source responsible for emissions into the atmosphere of greenhouse gases and other pollutants, such as sulphur dioxide, oxides of nitrogen and particulates. Consideration should therefore be given to increasing energy services without proportionate increase in primary energy consumption and increasing primary energy production without increasing pollution. Such consideration should draw on discussions on improved efficiency; accelerated development and use of renewable sources of energy; development and application of cleaner fuel technologies; increased financing and investment in sustainable energy development; increased research development and demonstration activities; and improved information and regional cooperation in the above areas.

2. Nuclear energy

31. As part of the goal for attaining economic growth and energy security, a number of countries intend to continue developing and using nuclear power. A related goal is that of reducing greenhouse gas emissions. In many of these countries, nuclear energy accounts for a significant portion of electricity production. Meanwhile, a number of countries which hitherto used nuclear energy have decided to discontinue its use as

an energy source and to decommission the nuclear reactors, while others have opted not to construct new nuclear plants. Some countries, because of technical considerations, such as power system size, are not considering introducing nuclear energy in the foreseeable future.

3. Research, development and demonstration

32. Support has been provided to the public and private sectors to promote research, development and demonstration in sustainable energy technologies. Of particular interest are renewable energy technologies as well as fossil fuel technologies, including for cleaner fuel development. Of equal importance are technologies for efficiency in the production, conversion, transfer, distribution and use of energy.

III. Observations on the submissions

33. As noted, only a small number of Governments have provided information on their activities in the field of energy in relation to sustainable development and identified the issues which they consider to warrant attention during the preparatory process leading to the ninth session of the Commission on Sustainable Development, in 2001. Most of the responding Governments are from developed countries, mainly Europe. The type of activities they are involved in and the perspective they provide tend to be similar. With only a few respondents from developing countries, the kind of issues that concern them most have yet to be identified.

34. Most of the issues that have been identified as important are universal in nature. Nevertheless, the degree of emphasis would be different overall if many more Governments from developing countries had made their submissions. A case in point relates to access to energy services: most responses state that there are no problems in this area. Yet it is common knowledge that more than 1.8 billion people, mainly in the rural areas of developing countries, do not have access to adequate and affordable energy services even to meet their basic needs. For many developing countries, the lack of capacity, especially in skilled human resources, is a hurdle that must be overcome in order for the countries to formulate suitable policies for sustainable energy development and to effectively and efficiently implement such policies. This is an area in which international cooperation is urgently needed in

the form of financial and other material assistance for further training in the different aspects of energy services. A related need, as expressed by a number of respondents from developing countries, is to promote the transfer of technology in energy and related sectors, in particular the elimination of barriers in the transfer of technology.

35. With regard to international cooperation in the energy sector, the issue of the flow of private investment into energy infrastructures and other services may need to be addressed, especially in relation to such topics as creating a favourable business environment for investment and assisting developing countries in developing suitable regulatory and fiscal structures. Access to financial resources and the provision of financial assistance by the international community to developing countries is a recurring theme for respondents from developing countries.

36. What is important from the perspective of developing countries is cooperation through technical assistance; education, training and dissemination of information; research, development and demonstration activities; and the replication of some of these procedures in developing countries.

37. It is hoped that during the period between the first and second sessions of the Group of Experts, more Governments will make submissions as requested by the Economic and Social Council and thus enable the Secretariat to prepare a more rigorous and thorough analysis of the key issues for consideration by the Commission at its ninth session.

Notes

¹ The following countries have responded: Austria, Brunei Darussalam, Barbados, Belgium, Brazil, China, Czech Republic, Denmark, Egypt, Finland, France, Germany, Greece, Indonesia, Ireland, Israel, Italy, Japan, Luxembourg, Namibia, Netherlands, New Zealand, Norway, Philippines, South Africa, Spain, Sweden, Switzerland, Thailand, United Kingdom of Great Britain and Northern Ireland. The European Union has also made a submission.